Application/Control No. Applicant(s)/Patent under Index of Claims Reexamination KITAOKA ET AL. 10/691,740 Examiner Art Unit Phillip Nguyen 2828 (Through numeral) Cancelled Rejected Non-Elected **Appeal** Ν Α 0 Allowed Restricted Interference Objected Claim Date Claim Date Claim Date Original Original Original 2/17/06 Final Fina 51

| 2 + 3 + 103 103 103 103 103 103 103 103 103 103 104 104 104 105 106 106 106 106 107 108 108 108 108 109 108 109 108 109 <th></th> <th>1 1</th> <th>+</th> <th></th> <th></th> <th>_</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>51</th> <th></th> <th></th> <th>L_</th> <th></th> <th></th> <th></th> <th></th> <th>l:::::</th> <th></th> <th>101</th> <th></th> <th></th> <th></th> <th>_ [</th> <th></th> <th></th> <th></th> <th></th> <th></th> | | 1 1 | + | | | _ | | | | | | | | 51 | | | L_ | | | | | l::::: | | 101 | | | | _ [| | | | | |
|---|----|-----|---------------|--------------|--------------|----------|-------------------------|----------|----------|---------------|----------|---|------------------------|----|-------------------|----------|---------|--------------|--------------------|----------|--|----------|--|-------|---|-------------------------|--|---|---|-------------------------|--------------------|---|-----------|
| 4 * 54 106 106 5 * 106 106 107 106 6 * 56 107 107 108 107 107 107 107 108 108 108 109 100 | | 2 | + | | | | Ï | | | | | | | 52 | | | | | | | | | | 102 | | | | | П | П | П | П | \exists |
| 5 | | 3 | + | | | | | | | | | | | 53 | | | | | | Т | | | | 103 | T | | T | П | Т | П | П | П | \neg |
| 5 | | 4 | + | | П | T | П | | | П | | | | 54 | \neg | | | | | T | | . | | | | | ╅ | T | 丁 | \neg | \neg | \neg | \neg |
| 6 | | 5 | + | | T | T | П | | | | | | | 55 | | | | | | _ | | | | | | 寸 | 丁 | T | ヿ | \neg | \neg | \neg | \neg |
| 107 | | 6 | + | \neg | \neg | | | | | | | | | | 一 | \neg | | | | | | | | | | 7 | T | 7 | ヿ | ┪ | 一 | \dashv | \neg |
| S | | | + | | \top | 寸 | | | | | | | | | 寸 | 十 | | T | \neg | \dashv | 1 | 1 | | | | \dashv | _ | 十 | ヿ | ヿ | | \dashv | \neg |
| 9 | | _ | | \neg | _ | _ | \neg | \neg | \neg | \neg | | | | 58 | \neg | - | + | T | \top | \top | 1 | | | 108 | \neg | 十 | \dashv | \dashv | 十 | _ | \neg | \dashv | \dashv |
| 10 + | | - | $\overline{}$ | \dashv | \dashv | 寸 | \dashv | 一 | 一 | \neg | | | | | \dashv | _ | + | \vdash | | _ | t | | | 109 | _ | 十 | - | _ | \dashv | \dashv | - | \dashv | \neg |
| 111 + 62 111 112 112 112 112 112 112 112 112 113 113 113 114 114 114 114 114 114 114 114 114 115 116 117 117 117 117 117 117 117 117 117 117 118 118 118 118 118 118 118 119 120 120 120 121 121 121 122 122 122 122 122 122 122 122 122 123 122 123 124 124 124 124 124 124 125 125 125 <td></td> <td></td> <td>_</td> <td>\neg</td> <td>\dashv</td> <td>寸</td> <td>\neg</td> <td>_</td> <td>\neg</td> <td></td> <td></td> <td></td> <td></td> <td>60</td> <td>\dashv</td> <td>\dashv</td> <td>_</td> <td></td> <td>\dashv</td> <td>+</td> <td>†</td> <td></td> <td></td> <td>110</td> <td>$\neg +$</td> <td>\dashv</td> <td>\dashv</td> <td>\dashv</td> <td>\dashv</td> <td>\dashv</td> <td>\dashv</td> <td>十</td> <td>_</td> | | | _ | \neg | \dashv | 寸 | \neg | _ | \neg | | | | | 60 | \dashv | \dashv | _ | | \dashv | + | † | | | 110 | $\neg +$ | \dashv | \dashv | \dashv | \dashv | \dashv | \dashv | 十 | _ |
| 12 | | | _ | | \dashv | _ | 寸 | 1 | 一 | Ħ | | | | | _ | _ | \top | | | + | + | | | | _ | \dashv | \dashv | \dashv | \dashv | \dashv | \dashv | 十 | \dashv |
| 13 | | | _ | \dashv | \dashv | \dashv | \dashv | \dashv | \dashv | | \neg | | | 62 | _ | -+ | + | | | +- | + | | ├ | 112 | \dashv | \dashv | + | \dashv | \dashv | \dashv | \dashv | + | \dashv |
| 14 | | | _ | - | + | 十 | \dashv | \dashv | _ | | - | | \vdash | | - | - | + | + | - | + | 1 | | \vdash | 112 | \dashv | + | -+ | - | + | \dashv | - | \dashv | - |
| 15 | | | - | + | + | 1 | \dashv | + | - | - | | | $\vdash \vdash$ | | \dashv | \dashv | + | ╂┈┤ | | + | ╁ | | ┝ | 114 | + | + | \dashv | \dashv | \dashv | \dashv | \dashv | \dashv | - |
| 16 | | | - | -+ | + | \dashv | \dashv | \dashv | \dashv | - | \neg | | \vdash | | - | - | + | \vdash | -+ | +- | ╁ | | | 115 | \dashv | + | + | + | + | \dashv | \dashv | \dashv | \dashv |
| 17 | | | \dashv | \dashv | + | \dashv | ┥ | + | - | \dashv | \dashv | | $\vdash \vdash$ | 66 | -+ | + | + | Н | | + | + | | | 116 | + | + | \dashv | + | \dashv | \dashv | \dashv | \dashv | \dashv |
| 18 68 118 119 119 119 119 119 120 119 120 120 121 121 121 122 122 122 122 122 122 123 123 123 123 124 124 124 124 124 125 125 125 125 125 125 125 126 127 127 127 127 128 128 128 128 129 | | | \dashv | | + | + | \dashv | \dashv | \dashv | \dashv | \dashv | | \vdash | | | | + | Н | | | + | | | 117 | + | + | \dashv | \dashv | + | \dashv | \dashv | \dashv | \dashv |
| 19 | | | | \dashv | \dashv | + | \dashv | | - | + | \dashv | | | | | -+ | + | Н | + | + | +- | | | | - | - | + | + | + | \dashv | \dashv | \dashv | \dashv |
| To To To To To To To To | | | -+ | \dashv | + | + | \dashv | | \dashv | - | | | ┝─┤ | 60 | + | + | + | \vdash | + | | ╁ | | <u> </u> | 110 | + | + | | + | + | \dashv | \dashv | \dashv | \dashv |
| 21 71 72 121 122 123 123 123 123 124 124 124 124 124 124 125 125 125 125 125 125 126 126 127 127 127 127 127 127 128 128 128 128 129 129 129 129 130 130 130 131 131 131 131 131 131 131 131 131 132 132 132 133 134 135 135 135 135 135 135 135 | | | + | \dashv | + | + | \dashv | + | - | \dashv | \dashv | | $\vdash \vdash \vdash$ | | \dashv | + | + | \vdash | \dashv | + | \vdash | | <u> </u> | | + | + | + | \dashv | + | | \dashv | \dashv | \dashv |
| 22 3 122 123 123 123 123 123 123 124 124 124 125 125 125 125 126 126 126 126 127 127 127 127 127 127 127 128 128 128 128 128 129 129 129 129 130 130 130 130 130 130 130 131 131 131 131 131 132 132 132 132 133 133 133 133 133 133 133 133 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 135 135 135 135 135 135 135 135 135 135 135 136 137 137 137 137 138 138 138 139 139 140 | 1 | 24 | - | \dashv | + | \dashv | -+ | \dashv | \dashv | \dashv | \dashv | | ┝─┤ | 70 | - | + | | \vdash | + | | +- | | <u> </u> | 120 | \dashv | + | + | - | + | \dashv | + | \dashv | \dashv |
| 23 73 123 124 124 124 125 125 125 126 126 126 126 126 126 126 127 127 127 127 127 127 128 128 128 128 129 129 129 129 129 130 130 130 131 131 131 131 131 131 131 131 133 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 | | | \dashv | + | + | \dashv | \dashv | \dashv | \dashv | \dashv | \dashv | | \vdash | | - | + | + | \vdash | - | + | - | | | 121 | + | + | + | + | + | | \dashv | \dashv | \dashv |
| 24 124 124 124 125 125 126 125 126 125 126 126 127 127 127 127 127 128 129 129 129 130 130 130 130 130 130 130 130 130 130 131 131 132 132 132 132 133 133 133 133 133 133 133 133 134 134 134 134 134 134 134 134 134 134 133 133 133 133 133 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 134 135 135 136 136 136 136 137 137 137 137 137 137 137 138 139 139 144 144 144 | | | 4 | \dashv | + | + | - | \dashv | | - | \dashv | | | 72 | - | - | - | | -+ | + | | | | 122 | | + | + | + | + | \dashv | + | \dashv | 4 |
| 25 125 125 126 126 126 126 127 127 127 127 128 127 128 128 128 129 129 129 130 130 130 130 130 130 131 131 131 132 132 132 132 132 133 134 134 134 134 134 134 134 134 135 135 135 136 136 137 138 138 139 139 139 139 140 141 141 141 141 141 142 143 144 144 144 144 145 145 146 146 146 146 147 147 148 149 | | | \dashv | + | | - | | | | - | | | | | -+ | - | ┵ | Н | | | ┼ | | | 123 | - | + | 4 | _ | \dashv | \dashv | \dashv | - | 4 |
| 26 76 126 127 128 127 128 127 128 128 128 128 128 128 128 129 129 129 130 130 130 130 131 131 131 131 131 131 131 131 131 132 133 133 133 133 133 133 133 133 133 133 133 133 134 134 134 134 134 134 134 134 135 135 136 136 137 138 137 138 137 138 137 138 139 139 139 140 140 140 141 141 141 141 141 141 142 143 144 144 144 144 144 144 144 144 144 144 144 144 144 144 145 145 145 145 146 | | 24 | \dashv | _ | _ | - | | - | \dashv | \rightarrow | _ | | \vdash | 74 | \dashv | _ | _ | \sqcup | - | +- | | | | 124 | _ | 4 | - | _ | \dashv | \dashv | | _ | _ |
| 27 127 127 128 128 128 128 128 128 129 129 129 130 130 130 131 131 131 131 131 131 131 131 131 132 132 133 13 | 2 | 25 | - | - | _ | 4 | - | | - | _ | _ | | <u> </u> | | \dashv | + | _ | | - | _ | 1 | | | 125 | _ | _ | 4 | _ | 4 | _ | \dashv | _ | _ |
| 28 78 29 128 30 80 31 81 32 82 33 83 34 84 35 85 36 86 37 87 38 88 39 89 40 90 41 91 42 92 43 93 44 94 45 96 46 96 47 97 48 98 148 49 | 12 | 26 | - | _ | _ | 4 | - | | - | - | _ | | | 76 | _ | _ | - | | _ | _ | ╄ | | | | | 4 | 4 | 4 | 4 | 4 | _ | 4 | _ |
| 29 79 129 30 80 130 31 81 131 32 82 132 33 83 133 34 84 134 35 85 135 36 86 136 37 87 137 38 88 138 39 89 139 40 90 140 41 91 141 42 92 142 43 93 143 44 94 144 45 96 146 47 97 147 48 98 148 49 99 149 | 2 | 2/ | 4 | _ | - | 4 | - | - | 4 | - | | | \sqcup | | | | | Ш | _ | _ | _ | | | | | 4 | 4 | _ | 4 | \dashv | \dashv | 4 | _ |
| 30 | | | 4 | _ | 4 | 4 | _ | _ | | 4 | | | | 78 | _ | | | Ш | | | | | | | | 4 | 4 | | 4 | _ | _ | 4 | _ |
| 31 81 131 32 132 132 33 133 133 34 84 134 35 85 135 36 136 137 38 88 138 39 89 139 40 90 140 41 91 141 42 92 142 43 93 143 44 94 144 45 95 145 46 96 146 47 97 147 48 98 148 49 99 149 | | | \dashv | - | + | 4 | \dashv | _ | _ | \dashv | _ | | | | _ | _ | \bot | Ш | _ | 4 | 1 | | | | | _ | \perp | 4 | 4 | _ | _ | 4 | _ |
| 32 82 132 133 33 83 133 133 34 84 134 134 35 85 135 135 36 86 136 137 38 88 138 138 39 89 139 139 40 90 140 141 41 91 141 141 42 92 142 142 43 93 143 143 44 94 144 144 45 95 146 146 47 97 147 148 48 98 148 149 | | | _ | \dashv | \bot | 4 | 4 | _ | _ | _ | _ | | | | 4 | _ | _ | \sqcup | | _ | | | | 130 | | _ | \dashv | \perp | 4 | _ | 4 | _ | _ |
| 33 133 134 34 134 134 35 135 135 36 136 136 37 137 137 38 88 138 39 89 139 40 90 140 41 91 141 42 92 142 43 93 143 44 94 144 45 95 145 46 96 146 47 97 147 48 98 148 49 99 149 | | | 4 | 4 | 4 | 4 | 4 | 4 | _ | 4 | _ | | | | _ | _ | \perp | \sqcup | | _ | <u> </u> | | | | | \downarrow | \perp | \perp | _ | _ | _ | 4 | _ |
| 34 84 134 135 35 85 135 136 36 86 136 137 38 88 138 138 39 89 139 139 40 90 140 141 41 91 141 141 42 92 142 142 43 93 143 143 44 94 144 144 45 95 145 146 46 96 146 147 48 98 148 148 49 99 149 149 | | | 4 | | \bot | 4 | _ | 4 | _ | _ | | | | 82 | 4 | _ | | | \perp | _ | _ | | | 132 | | _ | \perp | \perp | 4 | 4 | | _ | _ |
| 35 85 135 136 36 86 136 137 37 87 137 137 38 88 138 139 40 90 140 141 41 91 141 141 42 92 142 143 43 93 143 144 44 94 144 144 45 95 145 146 46 96 146 147 48 98 149 149 | | | 4 | _ | _ | 4 | _ | _ | _ | _ | _ | | | | _ | _ | _ | | | _ | 1 | | | | | 4 | 4 | _ | _ | _ | _ | 4 | ᆚ |
| 36 86 136 137 137 137 138 138 138 138 138 139 139 139 140 140 140 141 141 141 141 141 141 141 141 142 142 142 143 143 143 144 144 144 144 144 144 145 145 146 147 147 147 147 148 148 148 149 | 3 | 4 | 4 | _ | \perp | 4 | \dashv | _ | _ | _ | _ | | <u> </u> | 84 | | | \bot | \sqcup | _ | | 1 | | | 134 | | _ | 4 | \perp | _ | _ | _ | | 凵 |
| 37 88 137 138 38 88 138 139 40 90 140 141 41 91 141 141 42 92 142 143 43 93 143 144 44 94 144 144 45 95 145 145 46 96 146 147 48 98 148 148 49 99 149 149 | | | _ | | _ | 4 | | _ | _ | _ | | | \sqcup | | | | \perp | Ш | | _ | Щ | | | | _ | _ | \perp | \perp | \bot | | \dashv | _ | \Box |
| 38 88 138 39 90 140 41 91 141 42 92 142 43 93 143 44 94 144 45 95 145 46 96 146 47 97 147 48 98 148 49 99 149 | 3 | 36 | \dashv | 4 | \perp | 4 | \perp | | _ | | | | L | 86 | \dashv | | | \sqcup | | \bot | $oldsymbol{oldsymbol{oldsymbol{eta}}}$ | | | 136 | _ | \perp | \perp | \perp | \perp | \perp | \dashv | 丄 | 凵 |
| 39 89 139 40 90 140 41 91 141 42 92 142 43 93 143 44 94 144 45 95 145 46 96 146 47 97 147 48 98 148 49 99 149 | | | \dashv | \perp | | \perp | _ | _ | _ | | | | | | \perp | \perp | | Ш | | | Щ | | | | _ | _ | \perp | \perp | \perp | \perp | \perp | \perp | |
| 40 90 140 41 91 141 42 92 142 43 93 143 44 94 144 45 95 145 46 96 146 47 97 147 48 98 148 49 99 149 | 3 | 38 | 4 | \perp | _ | \perp | | | ļ | \dashv | _ | | | 88 | | | \perp | Ш | \perp | | $oxed{oxed}$ | | | 138 | \perp | | | _ [| \perp | [| \perp | \perp | |
| 41 91 42 92 43 93 44 94 45 95 46 96 47 97 48 98 49 99 | | | ightharpoonup | \perp | \perp | \perp | \perp | | _ | ┙ | | | | 89 | | \perp | 丄 | Ш | $oldsymbol{\perp}$ | | | | | | | | \perp | | \bot | | \perp | \perp | |
| 42 92 142 43 93 143 44 94 144 95 145 46 96 146 47 97 147 48 98 148 49 99 149 | | | \perp | \perp | \perp | \perp | \perp | | | \perp | | | | | | | | Ш | | \bot | | | | 140 | \perp | \perp | \perp | \perp | \perp | \Box | $oldsymbol{\perp}$ | \perp | |
| 43 93 143 44 94 144 45 95 145 46 96 146 47 97 147 48 98 148 49 99 149 | 4 | 11 | \perp | | | \perp | | | | | | | | 91 | | | | oxdot | | | | | | 141 | | \perp | \perp | \perp | \perp | \Box | $oldsymbol{\perp}$ | $oldsymbol{ol}}}}}}}}}}}}}}}$ | ╝ |
| 44 94 144 45 95 145 46 96 146 47 97 147 48 98 148 49 99 149 | 4 | 2 | \perp | | | | | | | | | | | 92 | \Box | | | | | | | | | 142 | | $oxed{\int}$ | | $oxed{oxed}$ | \Box | \prod | J | $oldsymbol{ol}}}}}}}}}}}}}}}$ | |
| 45 95 46 96 47 97 48 98 49 148 99 149 | | | | | | | | | | | | | | 93 | $oldsymbol{\bot}$ | | | | | | \Box | | | 143 | | $oxed{\Box}$ | $oldsymbol{oldsymbol{oldsymbol{oldsymbol{I}}}$ | $oldsymbol{ol}}}}}}}}}}}}}}}$ | $oldsymbol{ol}}}}}}}}}}}}}}}$ | $oldsymbol{\mathbb{J}}$ | \Box | $oldsymbol{ol}}}}}}}}}}}}}} $ | ┚ |
| 46 96 47 97 48 98 49 148 | | | | | | | \perp | | \Box | \Box | | | | 94 | | | | | \Box | L | | | | | \Box | \Box | $oldsymbol{\mathbb{I}}$ | \Box | | | \Box | \Box | J |
| 47 97 147 48 98 148 49 99 149 | | | J | \perp | \perp | \perp | $oldsymbol{\mathbb{I}}$ | | \Box | | | | | 95 | \Box | | | | \Box | | | | | 145 | $oldsymbol{ol}}}}}}}}}}}}}}}$ | $oldsymbol{\mathbb{T}}$ | \Box | $oldsymbol{ol}}}}}}}}}}}}}}}$ | $oldsymbol{ol}}}}}}}}}}}}}}}$ | \Box | \Box | | |
| 48 98 49 148 149 149 | | | J | $oxed{oxed}$ | $oxed{oxed}$ | floor | \Box | | | | | | | | J | | | | T | | | | | 146 | \Box | T | | | T | Т | T | T | ٦ |
| 48 98 49 148 149 149 | 4 | 7 | | | | I | | | | | | | | | T | T | | П | | | | | | | Т | \top | Т | Т | Т | 丁 | | \top | \neg |
| 49 99 149 149 | | | | | \Box | T | | | | | | | | | T | T | 1 | | | | | | | | \neg | Т | T | 丁 | 丁 | 丁 | \top | | \neg |
| | | | 寸 | \top | \neg | T | \top | \neg | | \neg | \neg | | | | \neg | \top | T | П | | | | | | | \neg | \top | T | T | T | ヿ | \top | 寸 | ヿ |
| | | | \neg | 1 | | T | \neg | 寸 | 寸 | 寸 | \neg | | | | \top | _ | \top | \Box | \top | 1 | П | | | 150 | \top | 十 | 十 | _ | \top | \top | \dashv | \top | ヿ |
| | | | | | | | | | | | _ | , | | | | | | | | | | | | - :-1 | | | | | | | | | |